UNITED STATES PATENT AND TRADEMARK OFFICE **CERTIFICATE OF CORRECTION**

PATENT NO.

: 7,079,523 B2

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DATED

APPLICATION NO. : 09/775305

: July 18, 2006

INVENTOR(S)

: G. Rodney Nelson, Jr.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

The Title Page, showing an illustrative figure, should be deleted and substitute therefor the attached title page.

Delete drawing sheets 1-9 and substitute therefor the drawing sheets, consisting of figs. 1-9 as shown on the attached page.

Signed and Sealed this

Fifth Day of June, 2007

JON W. DUDAS Director of the United States Patent and Trademark Office

(12) United States Patent

Nelson, Jr. et al.

(10) Patent No.:

TP

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(54) MAINTENANCE LINK USING **ACTIVE/STANDBY REQUEST CHANNELS**

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(*) Notice: Subject to any disclaimer, the term of this patent, is extended or adjusted under 35 U.S.C. 154(b) by 813 days.

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- Provisional application No. 60/180,598, filed on Feb. 7, 2000.
- (51) Int. Cl. 1104B 7/216 (2006.01) G08C 17/00 (2006.01)
- U.S. CL 370/342; 370/441
- (58) Field of Classification Search 370/335, 441, 479 See application file for complete search history.

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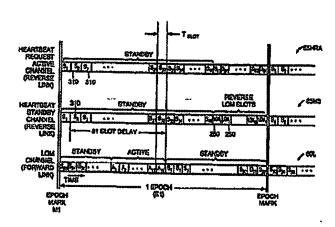
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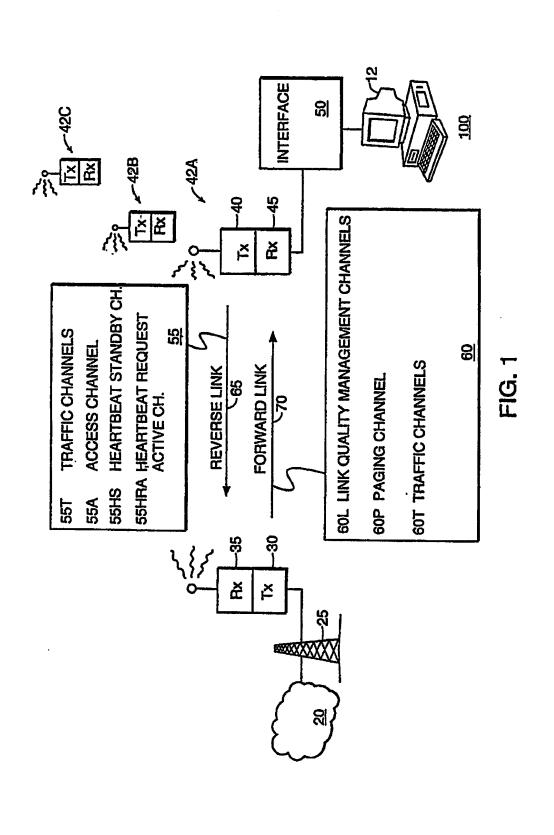
Primary Examiner—Huy D. Vu Assistant Examiner—Daniel Ryman (74) Attorney, Agent, or Firm-Hamilton, Brook, Smith & Reynolds, P.C.

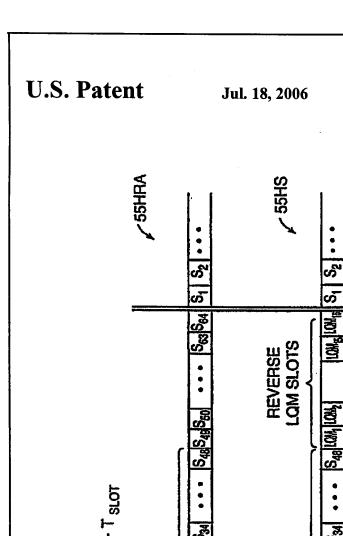
(57)**ABSTRACT**

Multiple field units in a CDMA system are synchronized for communication with a base station using shared forward and reverse link channels. In an illustrative embodiment, each field unit is assigned a time slot in a forward link channel to receive messages from the base station. Likewise, each field unit is assigned a time slot on a common reverse link channel for transmitting messages to the base station. Timing alignment and power level control among each of many field units and the base station is achieved by analyzing messages received at the base station in a corresponding time slot as transmitted by each field unit. Thereafter, a message is transmitted from the base station in a corresponding time slot to a particular field unit for adjusting its timing or power level so that future messages transmitted from the field unit are received in the appropriate time slot at the base station at a desired power level. In this way, minimal resources are deployed to maintain communication and precise synchronization between a base station and each of multiple users, minimizing collisions between field units transmitting in adjacent time slots on the reverse link. This method reduces the frequency a field unit must rely on the use of a slotted aloha random access channel according to IS-95.

10 Claims, 9 Drawing Sheets

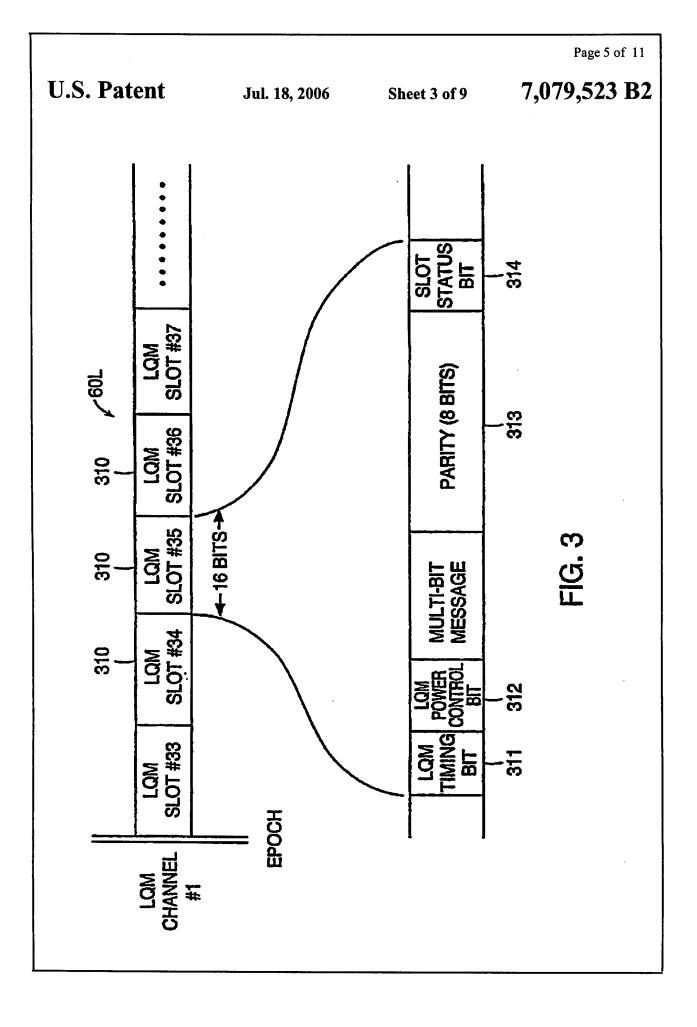


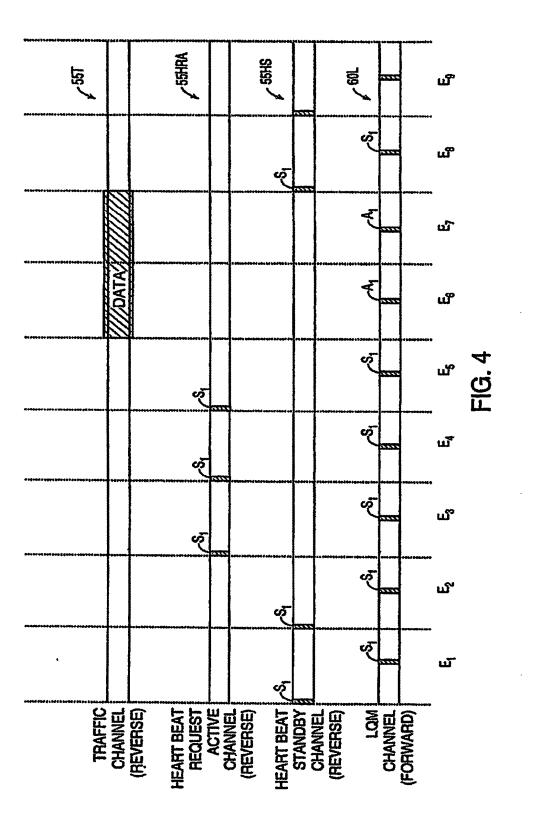




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FIG. 2 EPOCH MARK S30 S31 S32 32 STANDBY 250 A₁₅ A₁₆ S₁ S₂ S₃ S31 S32 S33 S34 1 EPOCH -(E1) S3 S32 STANDBY **ACTIVE** STANDBY 31 SLOT DELAY. STANDBY 310 ග් 310 TIME 310 EPOCH MARK M1 LOM CHANNEL (FORWARD STANDBY CHANNEL (REVERSE LINK) REQUEST ACTIVE CHANNEL (REVERSE **HEARTBEAT** HEARTBEAT

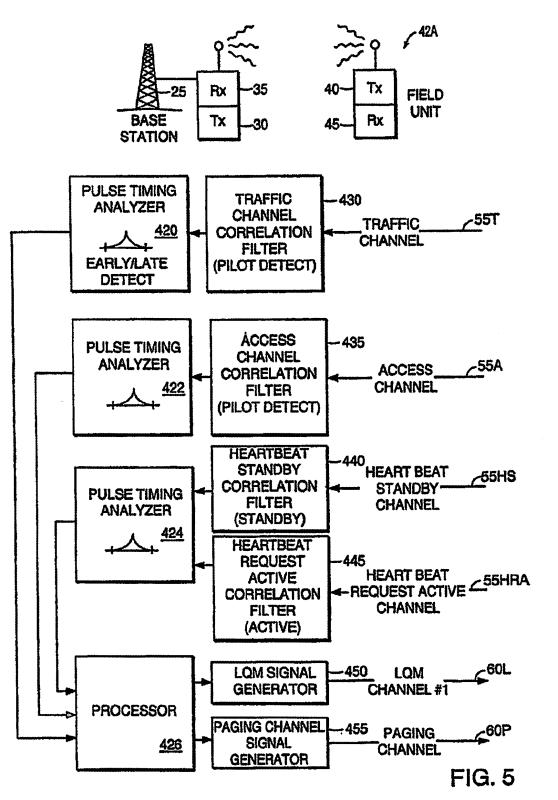


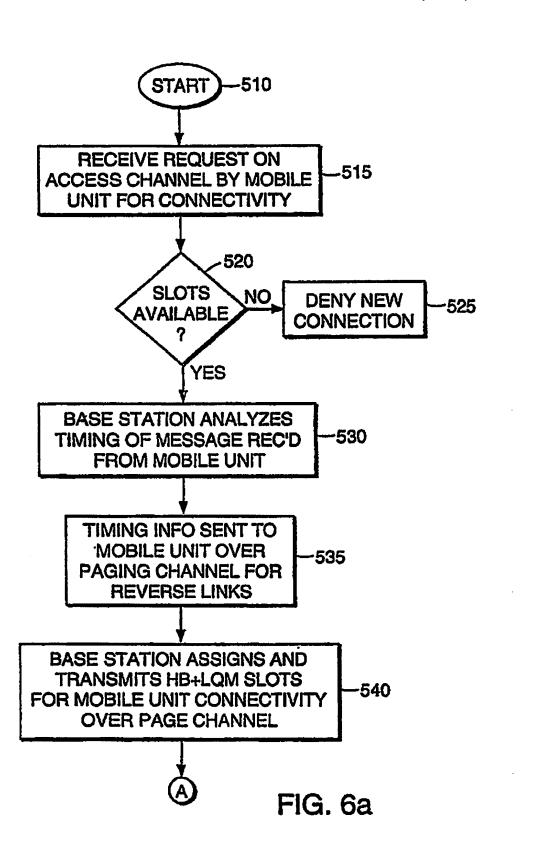


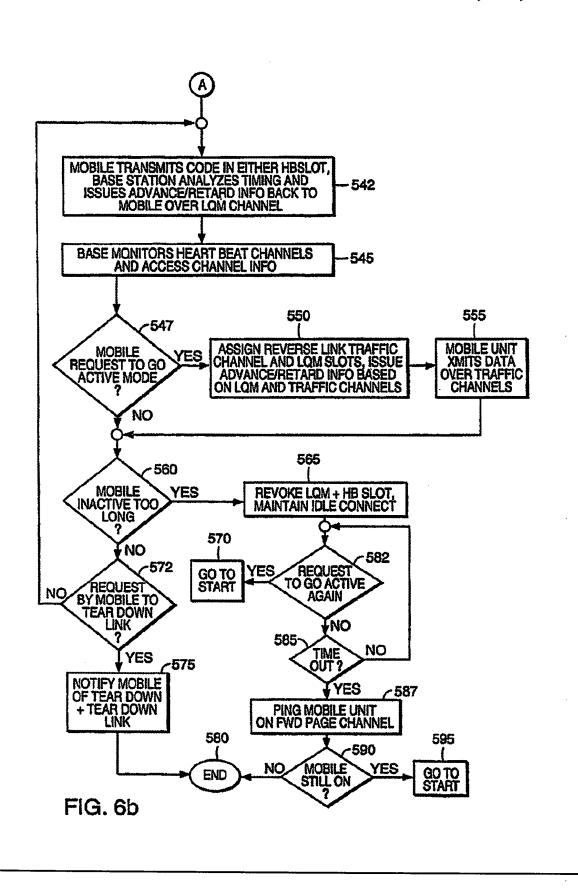
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	ASSIGNMNET OF TRAFFIC CHANNELS FOR DATA TRANSMISSIONS	YES	ON	QN N	
	TIMING REFERENCE IN REVERSE LINK	PILOT SYMBOL SEQUENCE IN TRAFFIC CHANNEL	UNIQUE CODE OF HEARTBEAT STANDBY CHANNEL. OR UNIQUE CODE OF HEARTBEAT REQUEST ACTIVE CH.	NONE	FIG. 8
	SYCHRONIZATION CHANNELS	LQM + TRAFFIC	LQM + HEARTBEAT OR LQM + HEARTBEAT - REQUEST	NONE	Ĭ.
	SUBSCRIBER MODE	ACTIVE	STANDBY	IDLE	·

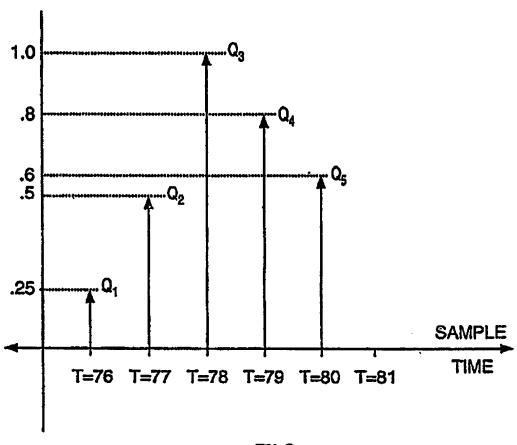


FIG. 7